RECEIVED
CENTRAL FAX CENTER
DEC 2 6 2007

Customer No.: 31561
Application No.: 10/711,534
Docket No.: 13708-US-PA

AMENDMENTS

To the Specification:

Please amend the following paragraphs as indicated hereinafter.

[0006] FIG. 1 is a perspective view showing a conventional battery holder for mounting of a backup battery 100 to a printed circuit board 114. As shown in FIG. 1, the battery 100 has ~~anode~~ a positive electrode and ~~cathode~~ a negative electrode (not labeled) which are respectively disposed on top and the bottom surfaces of the battery 100 and separated from each other through an insulating layer 110. To identify the different electrodes of the battery 100, the ~~anode~~ positive electrode is marked with a "+"symbol. To mount the battery 100 to the printed circuit board, firstly the ~~anode~~ positive electrode and the ~~cathode~~ negative electrode of the battery 100 are manually soldered to conductive terminals 102, 104, respectively. Then the conductive terminals 102, 104 are manually soldered to a positive contact 114b and a negative contact 114a respectively on the printed circuit board 114. Since the battery 110 is heat sensitive, the soldering of the terminals 102, 104 to the contacts 114a, 114b of the printed circuit board 114 can only achieved by manual operation, and cannot be performed by surface mount technology (SMT). Soldering by SMT has uniformly better quality than that by manual operation. Furthermore, SMT can be automatically operated, and, thus, can lower the manufacturing cost and have a better yield rate. Moreover, since the terminals 102, 104 are very small, to manually solder them to the contacts 114a , 114b is not an easy operation. To facilitate the soldering, a specially designed fixture must be deployed. Finally, when the battery 100 needs to be replaced, the soldering between the conductive terminals 102 and 104

and the printed circuit board 114 needs to be de-soldered and then re-soldered after the battery 100 is replaced with a new one. Such de-soldering and re-soldering operations are very laborious. Moreover, with the ~~anode~~ positive electrode of the battery 100 facing up without any protection, an operator may carelessly touch the ~~anode~~ positive electrode of the battery 100, which may cause damage to the battery 100 and shorten the life thereof. Finally, without a foolproof design for the battery holder, an operator for mounting the battery 100 may inadvertently mount it to the printed circuit board 114 in an upside-down manner. When this happens, the battery 100 and/or associated circuits may be damaged.

[0011] To achieve these and other advantages and in accordance with the purpose of the invention, as embodied and broadly described herein, the invention provides a battery holder for mounting a button-type backup battery on a printed circuit board. The printed circuit board has positive contacts and negative contacts thereon. The battery is disposed inside the battery holder and electrically connected to the positive and negative contacts of the printed circuit board via the battery holder. The battery holder mainly comprises a resilient electrode plate, a ring and a battery cap. The resilient electrode plate is soldered to the positive contacts of the printed circuit board. An ~~anode~~ positive electrode of the battery is put on the resilient electrode plate to connect electrically with the positive contacts on the printed circuit board via the resilient electrode plate. The ring is soldered to the negative contacts of the printed circuit board, surrounding the resilient electrode plate and accommodating the battery therein. The battery cap is fixed and electrically connected to the ring. The battery cap covers the battery and also forms an electrical contact with a ~~cathode~~ negative electrode of the battery. The ~~cathode~~ negative electrode is

located on a top surface of the battery.

[0012] The resilient electrode plate is soldered to the positive contacts of the printed circuit board by surface mount technology (SMT). The resilient electrode plate has flexible arms extending upwardly and electrically engaging with the ~~anode~~ positive electrode of the battery.

[0017] The battery cap has a top portion defining a step which fittingly covers a step formed on the ~~cathode~~ negative electrode of the battery.

[0018] The top portion of the battery cap has at least a spring tab extending toward a center thereof. The tab has a downward protrusion electrically contacting with the ~~cathode~~ negative electrode of the battery. The step of the battery cap is formed on the top portion thereof, between the spring tab and the flanged portion.

[0019] In assembly, firstly the resilient electrode plate and the ring are surface mounted to the printed circuit board. The battery is then put in the ring with the ~~anode~~ positive electrode of the battery being in contact with the flexible arms of the resilient electrode plate. Finally the battery cap is fastened to the ring with the downward protrusion on the spring tab electrically contacting with the ~~anode~~ positive electrode of the battery, and the protrusions on the flanged portion of the battery cap engaging in the groove of the ring.

[0026] Referring to FIG. 2, the present invention is a battery holder 210 for mounting a

battery 200 to a printed circuit board 220. The battery 200 is a button-type battery used as a back-up battery in a handheld electronic device (not shown) to supply power to the device when the main power supply of the device incidentally runs out. The battery 200 has a positive electrode (~~anode~~cathode) (not labeled) and a negative electrode (~~cathode~~anode) 202 located at bottom and the top surfaces of the battery 200, respectively. An insulation 206 surrounds a periphery of the battery 200 to separate the positive electrode from the negative electrode 202.

[0035] 3. The battery can be detached from the battery holder without damaging the printed circuit board or the battery itself. In addition, the foolproof design of the battery cap ensure a correct placement of the battery in the battery holder so that an inadvertent contact of a user's finger with ~~an anode~~ positive electrode of the battery is avoided.